IN THE UNITED STATES PATENT AND TRADEMARK OFFICE ON APPEAL FROM THE EXAMINER TO THE BOARD OF PATENT APPEALS AND INTERFERENCES

In re Application of:	Scott S. Firestone et al.
Serial No.:	10/680,918
Filing Date:	October 8, 2003
Group Art Unit:	2614
Confirmation No.:	7590
Examiner:	Melur Ramakrishnaiah
Title:	***System and Method for Performing Distributed Video Conferencing***

MAIL STOP: APPEAL BRIEF - PATENTS
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

Dear Sir:

Amended Appeal Brief

Appellants have appealed to the Board of Patent Appeals and Interferences from the decision of the Examiner finally ejecting Claims 1-34 pending in this case as evidenced in the Final Office Action mailed June 7, 2006, with Response filed August 1, 2006. An Advisory Action was mailed on September 6, 2007. Appellants filed a Notice of Appeal on September 7, 2006. Appellants filed an Appeal Brief on November 6, 2006. The Board of Appeals mailed a Notice of Non-Compliant Appeal Brief on December 7, 2006, and an Amended Appeal Brief was filed on December 27, 2006. The Board of Appeals electronically mailed an Examiner's Answer on August 31, 2007, and Appellants filed a Reply Brief on October 30, 2007. Appellants filed an Appeal Brief on June 1, 2007 in response in response to the Notification of Non-Compliant Appeal Brief mailed May 7, 2007. The Board of Appeals electronically mailed an Order Returning Un-docketed Appeal to Examiner on January 27, 2009 referencing the Amended/Supplemental Appeal Brief filed on June 1, 2007. Appellants file this Amended Appeal Brief in response to the to the Notification of Non-Compliant Appeal Brief dated February 10, 2009.

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Real Party in Interest

This application is currently owned by Cisco Technology, Inc., as indicated by an assignment recorded on October 8, 2003, in the Assignment Records of the United States Patent and Trademark Office at Reel 014600, Frame 0886.

Related Appeals and Interferences

There are no known appeals or interferences that will directly affect or be directly affected by or have a bearing on the Board's decision regarding this appeal.

Status of Claims

Claims 1-34 are pending in this application. Claims 1-34 are rejected pursuant to a Final Office Action mailed June 7, 2006, and are all presented for appeal. All pending claims are shown in Appendix A.

Status of Amendments

All amendments submitted by Appellant were entered by the Examiner before the issuance of the Final Office Action mailed June 7, 2006.

Summary of Claimed Subject Matter

Independent Claim 1 recites an apparatus for executing a video conference that includes an audio mixer (see FIGURE 1A, elements 14 and/or 16 and pages 21[line 11]-24[line 17] and 45[line 10]-46[line 28] of the specification for support) operable to receive one or more audio streams associated with a video conference from one or more end points (see FIGURE 1A, elements 12 and [e.g.] pages 9-26 of the specification for support) and to determine an active speaker associated with one of the end points. One or more media switches (see FIGURE 1A, elements 26 and pages 13[line 2]-14[line 14] and 17[line 31]-21[line 28] of the specification for support) operable to receive audio information associated with the active speaker. One or more of the media switches are operable to suppress one or more video streams except for a selected video stream associated with the active speaker, the selected video stream propagating to one or more of the media switches during the video conference. A selected one of the media switches is operable to replicate the selected video stream such that it may be communicated to one or more of the end points associated with the selected media switch, the audio mixer being central to the video conference and residing in a network, the audio mixer being able to create a mixed stream, which includes audio and video data, that may be communicated to one or more of the end points such that the end points do not have to perform audio mixing. FIGURES 1A and 4 generically demonstrate these described interactions. The other Independent Claims are analogous and recite similar limitations.

Using a communication system 10 as depicted in FIGURE 1A, a voice-activated conference with centralized audio is achieved. Audio streams from all end points 12 (both audio-only and video-capable) may be sent to a central audio mixer, where the active speaker is determined. This information is then propagated to all media switches 26. Media switches 26 may suppress all video streams except for the active speaker, and the video stream for the active speaker is propagated to all the MSs in the conference using SSM (Source Specific Multicast). Each media switch 26 replicates the video stream for all its local end points, which may be part of the conference. Alternatively, multicast can be used between media switch 26 and its local end points. Audio mixing can be centralized or distributed; the architecture does not require centralized audio.

Communication system 10 does not necessarily suppress the audio streams: it suppresses video streams. Also, suppression may be done at media switch 26 and, hence, end points 12 do not need to change or be modified to accommodate such an operation. Additionally, the active speaker can be an audio-only end point in which case the last video stream continues to be propagated. Moreover, the active speakers may receive the video stream corresponding to the last video speaker.

In a second embodiment of communication system 10, end points 12 can choose to lock-on to a particular participant of the conference. This capability may be provided through a separate interface or it may be part of the end point functionality at enhanced end points. Also, not all end points 12 may have the ability to lock-on due to bandwidth and other constraints. End points 12 that may be locked-on may stream an FV stream to the conference. Note that the FV-SV stream distinction, as well as the SSM used to propagate this stream, is not visible to the end point itself. This functionality could be implemented in media switch 26. Where multiple end points desire to lock-on to the same participant, they can subscribe to the same SSM stream, or signaling can be exchanged between media switches 26 to set up appropriate unicast streams. Thus, each end point 12 can receive a mixture of FV and SV streams. An end point can choose not to receive any SV streams at all and just receive the FV stream for a particular participant (e.g. a lecture mode with a question and answer session, where an end point may choose to receive only the keynote speaker and hear the audio for the questions). A video composite FV stream represents a case where a video end point may elect not to receive any SV streams.

In a third embodiment of communication system 10, the SV stream received by an end point is not switched based on the active audio speaker, but based on other criteria, such as the person controlling the shared whiteboard. Alternatively, the moderator may choose to switch the video source at appropriate times. There may be multiple SV streams in a single conference and they can use different criteria for switching the source. An end point can choose to receive one, multiple, or none of the SV streams in the conference.

In a fourth embodiment of communication system 10, media transformers (e.g. transcoders, transraters, and composition services) may be included in conferences to provide the relevant media services. These can be used as a media bridge, for example. A conference supporting multiple speeds/formats could be supported. The same conference can have a 128K version and a 384K version, which may be separate sub-conferences. The transrater may be included in both sub-conferences and transrate the output of one conference into the other. This would work for a SV conference, but an FV stream would utilize its own transrater. Thus, the method in which media transformers may be used in this architecture may depend on the specific needs of the transformation and multiple methods can be used simultaneously. Other media transformers could include internet protocol (IP)/television (TV) broadcast servers, for broadcasting conference, and similar services. Legacy MCUs (e.g. a Radvision MCU) could be used as a composition server in such an architecture to provide composition services. (See Pages 12-15: lines 28-14.)

FIGURE 4 is a simplified flowchart illustrating a series of example steps associated with executing distributed video conferencing. The flowchart may begin at step 100 where a video conference is initiated by a participant associated with a given end point of communication system 10. At step 102, the audio streams from all end points 12 (both audio-only and video-capable) may be sent to a central audio mixer, where the active speaker is determined. This information is then propagated to all media switches 26.

At step 104, media switches 26 may suppress all video streams except for the active speaker and the video stream for the active speaker may be propagated to all the MSs in the conference (e.g. using SSM). At step 106, each media switch 26 replicates the video stream for all its local end points, which may be part of the conference. In other scenarios, multicast protocols can be used between media switch 26 and its local end points. The audio mixing can be centralized or distributed within communication system 10. At step 108, end points 12 can choose to lock-on to a particular participant of the conference. This capability may be provided through a separate interface or it may be part of the end point functionality at enhanced end points. End points 12 that may be locked-on may stream an FV stream to the conference. This functionality could be implemented in media switch 26. Where multiple end points desire to lock-on to the same participant, media switches 26 can subscribe to the same SSM stream, or signaling can be exchanged between media switches 26 to set up appropriate unicast streams. Thus, each end point 12 can receive a mixture of FV and SV streams.

Step 110 reflects the ability of an end point to opt not to receive any SV streams at all and just receive the FV stream for a particular participant (e.g. a lecture mode with a question and answer session, where an end point may choose to receive only the keynote speaker and hear the audio for the questions). Step 112 is provided to illustrate the flexibility involved in switching the SV streams. The SV stream received by an end point may not necessarily be based on the active audio speaker, but based on other criteria, such as the person controlling a shared whiteboard. Alternatively, the moderator may choose to switch the video source at appropriate times, as reflected by step 114. There may be multiple SV streams in a single conference and different criteria may be used for switching the source. An end point can choose to receive one, multiple, or none of the SV streams in the conference.

Step 116 represents the ability of one communication system 10 to provide one or more media services to a participant of the video conference. Thus, communication system 10 may be provided with media transformers (e.g. transcoders, transraters, and composition services) to provide the relevant media services. (See Pages 46-47: lines 3-26.)

With regard to the independent claims currently under Appeal, Appellant provides the following concise explanation of the subject matter recited in the claim elements. For brevity, Appellant does not necessarily identify every portion of the Specification and drawings relevant to the recited claim elements. Additionally, this explanation should not be used to limit Appellant's claims but is intended to assist the Board in considering the Appeal of this Application.

For example, independent Claim 1 recites the following:

> An apparatus for executing a video conference, comprising (*see, e.g.*, Fig. 1A; 9:3-10:7):
>
> an audio mixer operable to receive one or more audio streams associated with a video conference from one or more end points and to determine an active speaker associated with one of the end points (*see, e.g.*, Figs. 1A, 4; 4:25-28; 12:15-27; 12:30-13:1; 13:10-12; 18:3-7; 21:11-18; 21:29-22:5; 46:8-10-11); and
>
> one or more media switches operable to receive audio information associated with the active speaker (*see, e.g.*, Figs. 1A, 4; 4:28-30; 12:30-13:2; 46:8-12), wherein one or more of the media switches are operable to suppress one or more video streams except for a selected video stream associated with the active speaker, the selected video stream propagating to one or more of the

> media switches during the video conference (*see, e.g.,* Figs. 1A, 4; 4:30-5:2; 13:1-6; 24:12-12-14; 46:13-16), and wherein a selected one of the media switches is operable to replicate the selected video stream such that it may be communicated to one or more of the end points associated with the selected media switch (*see, e.g.,* Figs. 1A, 4; 5:2-5; 13:6-8; 20:14-17; 46:16-19), the audio mixer being central to the video conference and residing in a network, the audio mixer being able to create a mixed stream, which includes audio and video data, that may be communicated to one or more of the end points such that the end points do not have to perform audio mixing (*see, e.g.,* Figs. 1A, 4; 5:19-20; 12:15-27; 12:30-13:1; 13:10-12; 21:11-18; 21:29-22:5; 22:28-23:31; 46:8-10; 46:21-22).

As another example, independent Claim 11 recites the following:

> A method for executing a video conference, comprising (*see, e.g.,* Fig. 4; 46:3-48:3):
>
> receiving, by an audio mixer, one or more audio streams associated with a video conference from one or more end points (*see, e.g.,* Figs. 1A, 4; 4:25-28; 12:15-27; 12:30-13:1; 13:10-12; 18:3-7; 21:11-18; 21:29-22:5; 46:8-10);
>
> determining an active speaker associated with one of the end points (*see, e.g.,* Figs. 1A, 4; 4:27-28; 12:30-13:1; 46:10-11);
>
> receiving audio information associated with the active speaker at one or more media switches (*see, e.g.,* Figs. 1A, 4; 4:28-30; 12:30-13:2; 46:8-12);
>
> suppressing one or more video streams except for a selected video stream associated with the active speaker, the selected video stream propagating to one or more of the media switches during the video conference (*see, e.g.,* Figs. 1A, 4; 4:30-5:2; 13:1-6; 24:12-12-14; 46:13-16); and
>
> replicating the selected video stream such that it may be communicated to one or more of the end points associated with a selected one of the media switches (*see, e.g.,* Figs. 1A, 4; 5:2-5; 13:6-8; 20:14-17; 46:16-19), the audio mixer being central to the video conference and residing in a network, the audio mixer being able to create a mixed stream, which includes audio and video data, that may be communicated to one or more of the end points such that the end points do not have to perform audio mixing (*see, e.g.,* Figs. 1A, 4; 5:19-20; 12:15-27; 12:30-13:1; 13:10-12; 21:11-18; 21:29-22:5; 22:28-23:31; 46:8-10; 46:21-22).

As another example, independent Claim 19 recites the following:

> A system for executing a video conference, comprising (*see, e.g.,* Fig. 1A; 9:3-10:7):
>
> means for receiving one or more audio streams associated with a video conference from one or more end points (*see, e.g.,* Figs. 1A, 4; 4:25-28; 12:15-27; 12:30-13:1; 13:10-12; 18:3-7; 21:11-18; 21:29-22:5; 46:8-10);

> means for determining an active speaker associated with one of the end points (*see, e.g.,* Figs. 1A, 4; 4:27-28; 12:30-13:1; 46:10-11);
>
> means for receiving audio information associated with the active speaker (*see, e.g.,* Figs. 1A, 4; 4:28-30; 12:30-13:2; 46:8-12);
>
> means for suppressing one or more video streams except for a selected video stream associated with the active speaker, the selected video stream propagating to one or more media switches during the video conference (*see, e.g.,* Figs. 1A, 4; 4:30-5:2; 13:1-6; 24:12-12-14; 46:13-16); and
>
> means for replicating the selected video stream such that it may be communicated to one or more of the end points associated with a selected one of the media switches (*see, e.g.,* Figs. 1A, 4; 5:2-5; 13:6-8; 20:14-17; 46:16-19), wherein the system includes an audio mixer that is central to the video conference and that resides in a network, the audio mixer being able to create a mixed stream, which includes audio and video data, that may be communicated to one or more of the end points such that the end points do not have to perform audio mixing (*see, e.g.,* Figs. 1A, 4; 5:19-20; 12:15-27; 12:30-13:1; 13:10-12; 21:11-18; 21:29-22:5; 22:28-23:31; 46:8-10; 46:21-22).

As another example, independent Claim 27 recites the following:

> Software for executing a video conference, the software being embodied in a computer readable medium and comprising computer code such that when executed is operable to (*see, e.g.,* 21:22-28; 22:4-10):
>
> receive, at an audio mixer, one or more audio streams associated with a video conference from one or more end points (*see, e.g.,* Figs. 1A, 4; 4:25-28; 12:15-27; 12:30-13:1; 13:10-12; 18:3-7; 21:11-18; 21:29-22:5; 46:8-10);
>
> determine an active speaker associated with one of the end points (*see, e.g.,* Figs. 1A, 4; 4:27-28; 12:30-13:1; 46:10-11);
>
> receive audio information associated with the active speaker (*see, e.g.,* Figs. 1A, 4; 4:28-30; 12:30-13:2; 46:8-12);
>
> suppress one or more video streams except for a selected video stream associated with the active speaker, the selected video stream propagating to one or more media switches during the video conference (*see, e.g.,* Figs. 1A, 4; 4:30-5:2; 13:1-6; 24:12-12-14; 46:13-16); and
>
> replicate the selected video stream such that it may be communicated to one or more of the end points associated with a selected one of the media switches (*see, e.g.,* Figs. 1A, 4; 5:2-5; 13:6-8; 20:14-17; 46:16-19), the audio mixer being central to the video conference and residing in a network, the audio mixer being able to create a mixed stream, which includes audio and video data, that may be communicated to one or more of the end points such that the end points do not have to perform audio mixing (*see, e.g.,* Figs. 1A, 4; 5:19-20; 12:15-27; 12:30-13:1; 13:10-12; 21:11-18; 21:29-22:5; 22:28-23:31; 46:8-10; 46:21-22).

Grounds of Rejection to be Reviewed on Appeal

1. Appellant requests that the Board review the Examiner's rejection of Claims 1-8, 11-18, 19-26, and 27-34 under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 6,128,649 issued to Smith et al. (hereinafter "Smith") in view of U.S. Publication No. 2004/0008635A1 issued to Nelson (hereinafter "Nelson").

2. The Examiner rejects Claim 9 under 35 U.S.C. §103(a) as being unpatentable over Smith in view of Nelson as applied to Claim 1, and further in view of U.S. Patent No. 6,300,973 issued to Feder (hereinafter "Feder").

3. The Examiner rejects Claim 10 under 35 U.S.C. §103(a) as being unpatentable over Smith in view of Nelson as applied to Claim 1, and further in view of U.S. Patent No. 6,590,604 issued to Tucker (hereinafter "Tucker").

The Examiner has also rejected all the claims based on 35 U.S.C. §112, but unfortunately that rejection is based on (presumably) the Examiner's lack of initiative in reading Applicants' Specification. Applicants have identified several portions of the Specification in order to better assist the Examiner in understanding the present invention. Applicants will not burden the Board with this matter at this time and will instead endeavor to resolve this matter (again) with the Examiner, who has been assigned to this case. However, based on the dearth of cooperation in this instant case, Applicants acknowledge that they may be exceedingly optimistic in this regard.

Argument

The Examiner's rejections of Claims 1-34 based on 35 U.S.C. §103 is improper, and the Board should withdraw the rejections for the reasons given below.

I. Issue 1 - Claims 1-8, 11-18, 19-26, and 27-34 are Patentable over the Proposed *Smith-Nelson* combination

Respectfully, Applicants remind the Board of well-settled §103 jurisprudence. To establish a prima facie case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation; either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Third, the prior reference (or references when combined) must teach or suggest all of the claim limitations.[1]

Applicants submit that the rejected claims are patentable over the art of record based on at least the third criterion of obviousness: none of the references alone or in combination teach, suggest, or disclose each and every claim limitation of the Independent Claims. Applicants pointed out differences between the pending subject matter and Smith in countless previous Office Actions, but in his repeated rejoinders the Examiner has mistakenly relied on several references to piece together numerous three-reference §103 rejections. In this most recent Office Action, the Examiner has proffered the Nelson reference. Unfortunately, Nelson does not inhibit the patentability of the pending subject matter because of its teachings, as explained more fully in the analysis below.

Turning first to the Smith reference (the base reference), nothing in Smith teaches an audio mixer that is resident in the network and that performs audio mixing such that end points do not have to perform such operations. Indeed, a persuasive, good-faith argument could be made that Smith is not analogous art. The Examiner has already conceded that this limitation [and others] is missing from Smith, which is why the Examiner has now relied on Nelson to fill these voids.

Applicants respectfully remind the Board that in examining a patent application, an Examiner must first determine what is analogous prior art for the purpose of analyzing the obviousness of the subject matter at issue.[2] In order to rely on a reference as a basis for rejection of an applicant's invention, the reference must either be in the field of applicant's endeavor or, if not, then be reasonably pertinent to the particular problem with which the inventor was concerned.[3] A reference is reasonably pertinent if, even though it may be in a different field from that of the inventor's endeavor, it is one, which because of the matter with which it deals, logically would have commended itself to an inventor's attention when considering his problem.[4] Smith is directed to the field of conferencing where end points are responsible for considerable processing (explained further below), but not even remotely relevant to the field of conferencing with a central processing function and, therefore, could be fairly characterized as not within Applicants' field of endeavor. Perhaps a crude analogy could be made to a simple Post Office system, which may have a central system for sorting mail, whereby the mail carrier would then ultimately receive a bag of mail that he/she is responsible for delivering. The architecture of Smith has no central processing so the end points (the mail carriers in this example) are responsible for receiving a truck of mail each day and then (in an arduous ordeal) getting on the truck, unloading all the mail, sorting the mail, figuring out how the mail should be distributed to the other carriers, and then finally delivering the mail to its intended destination. As is evident, the strain on the end points here is considerable and this rather simple example reflects the stark distinctions between the subject matter of Independent Claim 1 and the architecture of Smith.

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[1] *See* M.P.E.P. §2142-43.

Also, and referring back to this flawed base reference of the §103 rejection, Smith (not so coincidentally) fails to discuss or explain how multiple sets of media switches would interact with one another. Again, this limitation is found in Independent Claim 1 (albeit inherently) and yet it is not found anywhere in the Smith architecture. (Note: Because of the purposeful wording of Independent Claim 1, at least one media switch would be "operable to receive audio information", while others would be "operable to suppress", "operable to replicate", etc.). This distinction is highly significant and, once again, reflects why Smith is not only miserably deficient, but should not even be characterized as analogous art. In order to achieve a truly distributed system, media switches must ensure that streams are delivered to end points with proper lip synchronization. The coordination of such critical messages are provided by the present invention, but Smith is precluded from offering a separate, distributed media switch and, further, does not propose a method of coordinating separate distributed media switches to provide lip synchronization. Again, the important point in all such distinctions and features is in the implementation of a central device that is capable of accommodating mixed streams and alleviating the processing burden on end points.

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[2] M.P.E.P. § 2141.01(a).
[3] *In re Oetiker*, 977 F.2d 1443, 1446 (Fed. Cir. 1992).
[4] *In re Clay*, 966 F.2d 656, 659 (Fed. Cir. 1992).

Assuming arguendo that Smith is analogous art (even though clearly it is not), the ability of an audio mixer to alleviate burdensome processing from the end points is crucial to the presently claimed subject matter and yet it fails to appear in Smith. So critical is such a capability that Applicants made a positive recitation to this effect in Independent Claim 1: "the audio mixer being central to the video conference and residing in a network, the audio mixer being able to create a mixed stream, which includes audio and video data, that may be communicated to one or more of the end points such that the end points do not have to perform audio mixing."

Thus, in contrast to Smith, the present invention employs the use of a central audio mixer, which is resident in the network and which creates a mixed stream for each end point. Such a shift in processing obligations is far from trivial. The central network point, which is capable of performing numerous processing operations, as circumscribed by Independent Claim 1, offers a plethora of advantages to system administrators and end users alike. For example, this ability could be especially beneficial if several end points are "receive-only" because they can all receive an identical mixed audio stream from the central audio bridge. This configuration would offer further benefits because, in such an architecture, a centralized audio mixer can also determine speaker loudness information, which can be used by the media switches to determine whether source pruning should be performed. In this way, a video stream is automatically turned off if the audio bridge determines that the corresponding audio stream is no longer the loudest speaker. This is an example of allocating intelligence in the network, rather than in the end point. Nothing in Smith (as the Examiner concedes) provides such a disclosure.

For much of the missing limitations of Independent Claim 1, and there are quite a few, the Examiner has elected to rely on Nelson. However, Nelson is no panacea, as it is similarly flawed in a number of respects. Oddly, the Examiner cites Nelson for only three or four of the missing limitations of Independent Claim, when the Examiner should be grabbing his normal three-reference §103 rejection strategy to clumsily piece together the other missing limitations. Nelson does actually account for a mixed signal, which is in contrast to the myriad of other flawed §103 references that Applicants have seen during this tortured prosecution history. However, Nelson does not account for any of the limitations (highlighted above) that are missing from Smith. The whole point of the endeavor of the present invention is to process information such that the end points are not relegated with additional processing tasks. The same central intelligence that is missing from Smith is similarly missing from Nelson.

Throughout its disclosure, Nelson fails to disclose how any end point would avoid the aforementioned processing. Specifically, the Examiner only offers the following two passages (paragraphs 0054 and 0049) of Nelson for this teaching:

"[0054] Audio distribution processor 136 is also included in media mixer 132. As audio plays a key role in any conference environment, the ability to hear the speaker or each of the other participants is important. In a meeting/workgroup conference, each participant typically wishes to hear all other participants. However, in a presentation/training conference, the speaker wishes to only hear a questioner while the audience wishes to primarily hear the speaker and possibly the questioner. These various configurations are options provided by media hub server 130 through audio distribution processor 136. In one embodiment, the audio options are extended to include listening to the loudest participant, or loudest group of participants, listening only to a single speaker with the capability of logically "passing the microphone" to an appropriate participant. In addition, the logical "speaker" often becomes the primary video image distributed to the other participants. In another embodiment, an interface allowing a participant to create a private audio link to any other participant is enabled through audio distribution processor 136, as will be explained further below."

"[0049] Still referring to FIG. 4, media mixer 132 is configured to assemble audio and video information specific to each participant from the combination of all participants' audio and video, the specific participant configuration information, and server user-interface settings. Media mixer 132 performs multiplexing work by combining incoming data streams, i.e., audio/video streams, on a per participant basis. Video layout processor 134 and audio distribution processor 136 assemble the conference signals and are explained in more detail below. Client monitor-back-channel network allows media hub server 130 to monitor a user's interactions with conference client 144 and to provide the appearance that the peer-to-peer software application has additional functionality. The additional functionality adapts the peer-to-peer functionality of the software application, executed by conference client 144, for the multi-participant environment described herein. The client monitor-back-channel network includes client monitor 146 back-channel connection 126, back-channel controller 140, and event handler 142."

Almost all of this information is what is conventionally done (read: irrelevant to this proceeding) and certainly does not account for the ability to centrally process both video and audio streams between multiple media switches such that end points do not have to perform these functions. In particular, Nelson does not provide how any end point would avoid audio mixing, as recited in Independent Claim 1. Applicants would also like to point out that nowhere in Nelson is there any teaching of a truly distributed system, as explained in the analysis of Smith above.

In a broad sense, it appears that the proposed modification (i.e. adding Nelson to the architecture of Smith) changes the principle of operation of the Prior Art being modified. For example, how can the teachings of Nelson, be infused in Smith, which has no central processing capability and no network architecture. Thus, the principle of operation of the Smith patent would be improperly changed by incorporating the teachings of the Nelson patent. The Examiner has yet to explain how the Smith patent can be combined with the Nelson patent in view of such different functionalities. Therefore, Applicants respectfully submit that the Examiner has failed to establish the first criteria for a prima facie case of obviousness.

In addition, it appears that the proposed modification of Smith would render the cited reference unsatisfactory for its intended purpose. Applicants respectfully remind the Examiner that if a proposed modification would render the prior art invention being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification.[5] In re Gordon represents a case in which the Federal Circuit found that if the prior art device was modified as suggested by the lower court, it would be inoperable for its intended purpose and thus the §103(a) argument was improper in that circumstance. Such too is the case here.

For example, with respect to a §103(a) rejection as presented in the Office Action, Applicants remind the Examiner that if the proposed modification or combination of the prior art would change the principle of operation of the prior art invention being modified, then the teachings of the references are not sufficient to render the claims prima facie obvious.[6] The court in Ratti held that the §103 rejection at issue was improper because the "suggested combination of references would require a substantial reconstruction and redesign of the elements shown in [the primary reference] as well as a change in the basic principle under which the [primary reference] construction was designed to operate."[7] For the reasons discussed above with reference to the teachings of Nelson in the context of Independent Claim 1, Applicants assert that the modification of Smith proposed by the Examiner would be improper because it would change the principle of operation of the teachings of Smith. For at least this single reason, Independent Claim 1 is clearly patentable over the Smith-Nelson combination.

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[5] *In re Gordon*, 733 F.2d 900, 221 USPQ 1125 (Fed. Cir. 1984). (*See also*, M.P.E.P. §2143.01).

There is a plethora of additional reasons why Smith and Nelson could not possibly inhibit the patentability of the present invention. For example, according to the Smith architecture, in order to receive a video stream, the end point subscribes (joins) the multicast group assigned to that video stream. When the end point no longer wants to receive a video stream, it unsubscribes (leaves) the multicast group. In contrast to these operations, which are "end-point controlled" the present invention performs pruning at the source: independent of whether or not multicast is used. Again, such a difference is significant in the context of making decisions at a central location (recited in Independent Claim 1), as opposed to burdening the end point with such obligations. The architecture of the present invention, which offers an audio mixer being central to the video conference and residing in a network, provides that if a video stream from an originating end point is not desired by any other end point, then the video stream is generally not transmitted beyond the end point's local media switch. Hence, the decision does not even reach the end point in such a scenario. This implementation lowers the bandwidth usage in the core of the network. Bandwidth optimization is not trivial, as it is important in any communication system. This advantage is a result of the audio mixer being central to the video conference and residing in a network. This benefit is also realized because a mixed stream is sent by the audio mixer and received by one or more of the end points such that they do not have to handle audio mixing. These limitations are also outlined in Independent Claim 1.

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[6] *In re Ratti*, 270 F.2d 810, 123 USPQ 349 (CCPA 1959). (*See also*, M.P.E.P. 2143.01).

[7] 270 F.2d at 813, 123 USPQ at 352.

Yet another deficiency of Smith is revealed by its disclosure. Smith adds a catchall schematic diagram, which is depicted in FIGURE 20. FIGURE 20 shows how certain functionalities can be moved out of the end point and into the network. However, this embodiment does not provide true network intelligence, which requires: centralized audio mixing for multiple end points; automatic source pruning, based on feedback from the audio mixer; external video mixing for multiple end points; and transparency for a third party end points. Again, all of these features and capabilities are provided by the architecture of the present invention because of the configuration in which end points are relieved of processing capabilities. Hence, a flexible system results when an intelligent audio mixer is implemented such that the end points do not have to perform audio mixing and mixed streams are properly coordinated, as is clearly recited in Independent Claim 1.

Applicants also wish to note that even if any of these elements of Independent Claim 1 were disclosed in the cited reference, which clearly they are not, usage of the Nelson reference or of the proposed Smith-Nelson is still improper because the Examiner has not shown the required suggestion or motivation in Smith or Nelson, or in the knowledge generally available to one of ordinary skill in the art at the time of the invention to combine these references. In particular, the Smith reference fails to even accommodate the central mixing operations outlined above. Indeed, after studying its teachings in their entirety, the shortcomings of Smith are readily evident. The mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination.[8] Thus, the sheer fact that the teachings of one reference would improve the teachings of another reference, as the Examiner asserts, does not provide the required suggestion to combine. The U.S. Court of Appeals for the Federal Circuit has held that the fact that the prior art may be modified in the manner suggested by the Examiner does not make the modification obvious unless the prior art suggests the desirability of the modification.[9]

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[8] M.P.E.P. §2143.01 (emphasis in original).

[9] In *re Fritch,* 972 F.2d 1260, 1266 (Fed. Cir. 1992).

Nothing in Smith or Nelson suggests or motivates the proposed combination, nor has the Examiner provided evidence that suggests or motivates the proposed combination.[10] This is because the references fail to include the above-identified functionality and, therefore, are precluded from rendering the pending claims unpatentable. Speculation in hindsight that "it would have been obvious" to make the proposed combination because the proposed combination would be helpful is insufficient under M.P.E.P.[11] guidelines and governing Federal Circuit case law.[12] The M.P.E.P. consistently confirms that this approach is improper and, thus, it should not be used here.[13] Moreover, under the M.P.E.P., such statements and assumptions are inadequate to support a finding of motivation, which is a factual question that cannot be resolved on "subjective belief and unknown authority."[14] Under such circumstances, the Examiner must point to some concrete evidence in the record in support of the rejection, rather than relying on an assessment of what is "well recognized" or what a skilled artisan would be "well aware."[15]

In the context of the second criterion of non-obviousness, the Examiner has also failed to show a reasonable expectation of success for the proposed combinations. Therefore,

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[10] If "common knowledge" or "well known" art is being relied on to combine the references, Applicants respectfully request that a reference be provided in support of this position pursuant to M.P.E.P. §2144.03. If personal knowledge is being relied on to supply the required motivation or suggestion to combine, Applicants respectfully request that an affidavit supporting such facts be provided pursuant to M.P.E.P. §2144.03.

[11] *See* M.P.E.P. §2145 X.C. ("The Federal Circuit has produced a number of decisions overturning obviousness rejections due to a lack of suggestion in the prior art of the desirability of combining references.").

[12] For example, in *In re Dembiczak*, 175 F.3d 994 (Fed. Cir. 1999), the Federal Circuit reversed a finding of obviousness by the Board of Patent Appeals and Interferences, explaining that evidence of a suggestion, teaching, or motivation to combine is essential to avoid impermissible hindsight reconstruction of an applicant's invention:

> Our case law makes clear that the best defense against the subtle but powerful attraction of hindsight obviousness analysis is *rigorous application of the requirement for a showing of the teaching or motivation to combine prior art references.* Combining prior art references without evidence of such a suggestion, teaching, or motivation simply takes the inventor's disclosure as a blueprint for piecing together the prior art to defeat patentability—the essence of hindsight.

175 F.3d at 999 (quoting *W.L. Gore & Assoc., Inv. v. Garlock, Inc.*, 721 F.2d 1540, 1553 (Fed. Cir. 1983)) (emphasis added) (citations omitted). *See also In Re Jones*, 958 F.2d 347 ("Conspicuously missing from this record is any evidence, other than the PTO's speculation (if that can be called evidence) that one of ordinary skill in the herbicidal art would have been motivated to make the modification of the prior art salts necessary to arrive at [the claimed invention].").

[13] *See* M.P.E.P. §2145.

[14] *See* In re Lee, 277 F.3d 1338, 1344 (Fed. Cir. 2002).

[15] *See* In re Zurko, 258 F.3d 1379, 1385-86 (Fed. Cir. 2001).

Applicants respectfully submit that the Examiner has also failed to establish the second criteria for a prima facie case of obviousness.

Independent Claims 11, 19, and 27 recite limitations similar, but not identical, to those recited in Independent Claim 1. Therefore, these claims are also allowable, for example, for the same reasons as identified above. Additionally, the corresponding dependent claims from these Independent Claims are also patentably distinct for analogous reasons.

II. Issue 2 - Claim 9 is Patentable over the Proposed *Smith-Nelson-Feder* combination

Claim 9 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over the Examiner's proposed combination of *Smith* and *Nelson* as applied to Claim 1 and further in view of *Feder*. Appellants respectfully submit that these rejections are improper and should be reversed by the Board.

Claim 9, which Appellants discuss as an example, recites: "The apparatus of Claim 8, wherein the media bridge includes a selected one or more of a media transformer, a transcoder, and a transrater." Claim 9 depends from independent Claim 1, which Appellants have shown to be allowable over the proprosed *Smith-Nelson* combination. The Examiner does not allege that *Feder* makes up for the above-discussed deficiencies of the proposed *Smith-Nelson* combination. Therefore, dependent Claim 9 is allowable at least because it depends from allowable independent Claim 1.

Additionally, Appellants do not admit that the proposed *Smith-Nelson-Feder* combination is possible or that the Examiner has provided an adequate reason in the cited references or in the knowledge generally available to one of ordinary skill in the art at the time of Appellant's invention to combine or modify the various references in the manner proposed by the Examiner.

III. Issue 3 - Claim 10 is Patentable over the Proposed *Smith-Nelson-Tucker*

Claim 10 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over the Examiner's proposed combination of *Smith* and *Nelson* as applied to Claim 1 and further in view of *Tucker*. Appellants respectfully submit that these rejections are improper and should be reversed by the Board.

Claim 10, which Appellants discuss as an example, recites:

> The apparatus of Claim 1, further comprising: a gateway operable to provide connectivity to one or more media switches, one or more of the media switches being operable to facilitate participation in the video conference by the first and second end points.

Claim 10 depends from independent Claim 1, which Appellants have shown to be allowable over the proprosed *Smith-Nelson* combination. The Examiner does not allege that *Tucker* makes up for the above-discussed deficiencies of the proposed *Smith-Nelson* combination. Therefore, dependent Claim 10 is allowable at least because it depends from allowable independent Claim 1.

Additionally, Appellants do not admit that the proposed *Smith-Nelson-Tucker* combination is possible or that the Examiner has provided an adequate reason in the cited references or in the knowledge generally available to one of ordinary skill in the art at the time of Appellant's invention to combine or modify the various references in the manner proposed by the Examiner.

Accordingly, all of the pending claims have been shown to be allowable as they are patentable over the references of record. Notice to this effect is respectfully requested in the form of a full allowance of these claims.

Conclusion

Appellants respectfully submit that they have complied with the provisions of 37 C.F.R. 41.37 and have demonstrated that the present invention, as claimed, is clearly distinguishable over the prior art cited by the Examiner. Therefore, Appellants respectfully request the Board of Patent Appeals and Interferences to reverse the final rejection of the Examiner and instruct the Examiner to issue a notice of allowance of all claims.

Appellants believe no fee is due. However, if a fee is due, the Commissioner is hereby authorized to charge any necessary fees or credit any overpayments to Deposit Account. No. 02-0384 of Baker Botts, L.L.P.

Respectfully submitted,
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Appendix A: Claims on Appeal

1. (Previously Presented) An apparatus for executing a video conference, comprising:

an audio mixer operable to receive one or more audio streams associated with a video conference from one or more end points and to determine an active speaker associated with one of the end points; and

one or more media switches operable to receive audio information associated with the active speaker, wherein one or more of the media switches are operable to suppress one or more video streams except for a selected video stream associated with the active speaker, the selected video stream propagating to one or more of the media switches during the video conference, and wherein a selected one of the media switches is operable to replicate the selected video stream such that it may be communicated to one or more of the end points associated with the selected media switch, the audio mixer being central to the video conference and residing in a network, the audio mixer being able to create a mixed stream, which includes audio and video data, that may be communicated to one or more of the end points such that the end points do not have to perform audio mixing.

2. (Original) The apparatus of Claim 1, wherein the selected video stream propagates to one or more of the media switches during the video conference using a multicast protocol.

3. (Original) The apparatus of Claim 1, wherein a selected one of a multicast and a unicast operation is performed between the selected media switch and the end points associated with the selected media switch.

4. (Original) The apparatus of Claim 1, wherein a selected media switch is operable to enable a selected one of the end points associated with the video conference to lock-on to a participant of the video conference, the selected end point propagating a fixed video (FV) stream associated with the video conference.

5. (Original) The apparatus of Claim 1, wherein a selected media switch is operable to control whether a selected one of the end points receives an FV stream, a switched video (SV) stream, or any combination thereof.

6. (Original) The apparatus of Claim 1, wherein a selected one of the end points does not receive an SV stream based on the active speaker, and wherein the selected one of the media switches is operable to enable a selected one of the end points to receive the SV stream based on a selected whiteboard control feature.

7. (Original) The apparatus of Claim 1, wherein a selected one of the media switches is operable to enable a moderator of the video conference to control a video source such that a selected one of the end points receives a selected video stream as determined by the moderator.

8. (Original) The apparatus of Claim 1, further comprising:

a media bridge operable to provide one or more media services for the video conference such that one or more of the media services are delivered to one or more of the end points.

9. (Original) The apparatus of Claim 8, wherein the media bridge includes a selected one or more of a media transformer, a transcoder, and a transrater.

10. (Original) The apparatus of Claim 1, further comprising:

a gateway operable to provide connectivity to one or more media switches, one or more of the media switches being operable to facilitate participation in the video conference by the first and second end points.

11. (Previously Presented) A method for executing a video conference, comprising:

receiving, by an audio mixer, one or more audio streams associated with a video conference from one or more end points;

determining an active speaker associated with one of the end points;

receiving audio information associated with the active speaker at one or more media switches;

suppressing one or more video streams except for a selected video stream associated with the active speaker, the selected video stream propagating to one or more of the media switches during the video conference; and

replicating the selected video stream such that it may be communicated to one or more of the end points associated with a selected one of the media switches, the audio mixer being central to the video conference and residing in a network, the audio mixer being able to create a mixed stream, which includes audio and video data, that may be communicated to one or more of the end points such that the end points do not have to perform audio mixing.

12. (Original) The method of Claim 11, wherein the selected video stream propagates to one or more of the media switches during the video conference using a multicast protocol.

13. (Original) The method of Claim 11, further comprising:

performing a selected one of a multicast and a unicast operation between the selected media switch and the end points associated with the selected media switch.

14. (Original) The method of Claim 11, further comprising:

enabling a selected one of the end points associated with the video conference to lock-on to a participant of the video conference, the selected end point propagating a fixed video (FV) stream associated with the video conference.

15. (Original) The method of Claim 11, further comprising:
controlling whether a selected one of the end points receives an FV stream, a switched video (SV) stream, or any combination thereof.

16. (Original) The method of Claim 11, wherein a selected one of the end points does not receive an SV stream based on the active speaker, and wherein the selected media switch is operable to enable a selected one of the end points to receive the SV stream based on a selected one of a whiteboard control feature and a bandwidth parameter.

17. (Original) The method of Claim 11, further comprising:
enabling a moderator of the video conference to control a video source such that a selected one or more of the end points receives a selected video stream as determined by the moderator.

18. (Original) The method of Claim 11, further comprising:
providing one or more media services to the video conference such that one or more of the media services are delivered to one or more of the end points.

19. (Previously Presented) A system for executing a video conference, comprising:

means for receiving one or more audio streams associated with a video conference from one or more end points;

means for determining an active speaker associated with one of the end points;

means for receiving audio information associated with the active speaker;

means for suppressing one or more video streams except for a selected video stream associated with the active speaker, the selected video stream propagating to one or more media switches during the video conference; and

means for replicating the selected video stream such that it may be communicated to one or more of the end points associated with a selected one of the media switches, wherein the system includes an audio mixer that is central to the video conference and that resides in a network, the audio mixer being able to create a mixed stream, which includes audio and video data, that may be communicated to one or more of the end points such that the end points do not have to perform audio mixing.

20. (Original) The system of Claim 19, wherein the selected video stream propagates to one or more of the media switches during the video conference using a multicast protocol.

21. (Original) The system of Claim 19, further comprising:

means for performing a selected one of a unicast and a multicast operation between the selected media switch and the end points associated with the selected media switch.

22. (Original) The system of Claim 19, further comprising:

means for enabling a selected one of the end points associated with the video conference to lock-on to a participant of the video conference, the selected end point propagating a fixed video (FV) stream associated with the video conference.

23. (Original) The system of Claim 19, further comprising:
means for controlling whether a selected one of the end points receives an FV stream, a switched video (SV) stream, or any combination thereof.

24. (Original) The system of Claim 19, wherein a selected one of the end points does not receive an SV stream based on the active speaker, and wherein the selected media switch is operable to enable a selected one of the end points to receive the SV stream based on a selected whiteboard control feature.

25. (Original) The system of Claim 19, further comprising:
means for enabling a moderator of the video conference to control a video source such that a selected one or more of the end points receives a selected video stream as determined by the moderator.

26. (Original) The system of Claim 19, further comprising:

means for providing one or more media services to the video conference such that one or more of the media services are delivered to one or more of the end points.

27. (Previously Presented) Software for executing a video conference, the software being embodied in a computer readable medium and comprising computer code such that when executed is operable to:

receive, at an audio mixer, one or more audio streams associated with a video conference from one or more end points;

determine an active speaker associated with one of the end points;

receive audio information associated with the active speaker;

suppress one or more video streams except for a selected video stream associated with the active speaker, the selected video stream propagating to one or more media switches during the video conference; and

replicate the selected video stream such that it may be communicated to one or more of the end points associated with a selected one of the media switches, the audio mixer being central to the video conference and residing in a network, the audio mixer being able to create a mixed stream, which includes audio and video data, that may be communicated to one or more of the end points such that the end points do not have to perform audio mixing.

28. (Original) The medium of Claim 27, wherein the selected video stream propagates to one or more of the media switches during the video conference using a multicast protocol.

29. (Original) The medium of Claim 27, wherein the code is further operable to: perform a selected one of a unicast and a multicast operation between the selected media switch and the end points associated with the selected media switch.

30. (Original) The medium of Claim 27, wherein the code is further operable to: enable a selected one of the end points associated with the video conference to lock-on to a participant of the video conference, the selected end point propagating a fixed video (FV) stream associated with the video conference.

31. (Original) The medium of Claim 27, wherein the code is further operable to: control whether a selected one of the end points receives an FV stream, a switched video (SV) stream, or any combination thereof.

32. (Original) The medium of Claim 27, wherein a selected one of the end points does not receive an SV stream based on the active speaker, and wherein the selected media switch is operable to enable a selected one of the end points to receive the SV stream based on a selected whiteboard control feature.

33. (Original) The medium of Claim 27, wherein the code is further operable to: enable a moderator of the video conference to control a video source such that a selected one or more of the end points receives a selected video stream as determined by the moderator.

34. (Original) The medium of Claim 27, wherein the code is further operable to:

provide one or more media services to the video conference such that one or more of the media services are delivered to one or more of the end points.

Appendix B: Evidence

NONE

Appendix C: Related Proceedings

NONE